

WHAT IS CLAIMED IS:

1. A liquid crystal display comprising:  
a pair of substrates; and  
a liquid crystal layer interposed between the  
substrates,  
wherein the liquid crystal display has a reflective  
area and a transmissive area, and  
wherein at least one of the substrates is provided with  
a retardation film whose phase difference differs between  
the reflective area and the transmissive area.
2. A liquid crystal display according to Claim 1,  
wherein the retardation film is provided on a surface of the  
substrate which faces the liquid crystal layer.
3. A liquid crystal display according to Claim 1,  
wherein the retardation film is provided only in the  
reflective area.
4. A liquid crystal display according to Claim 1,  
wherein the retardation film comprises a  $\lambda/4$  layer.
5. A liquid crystal display according to Claim 4,  
wherein the retardation film further comprises a retardation

layer which compensates for chromatic dispersion which occurs at the  $\lambda/4$  layer.

6. A liquid crystal display according to Claim 5, wherein the retardation layer comprises a  $\lambda/2$  layer.

7. A liquid crystal display according to Claim 1, wherein the liquid crystal layer has a phase difference of  $\lambda/4$  in the reflective area and a phase difference of  $\lambda/2$  in the transmissive area when no voltage is applied or when a voltage is applied.

8. A liquid crystal display according to Claim 1, wherein the liquid crystal layer has a phase difference of  $\lambda/4$  in the reflective area and is in a  $90^\circ$  twisted nematic state in the transmissive area when no voltage is applied or when a voltage is applied.

9. A liquid crystal display according to Claim 8, wherein the liquid crystal layer is in a twisted nematic state in the reflective area when no voltage is applied or when a voltage is applied.

10. A liquid crystal display according to Claim 8, wherein the liquid crystal layer displays an image in an

electrically controlled birefringence mode in the reflective area and in a twisted nematic mode in the transmissive area.

11. A liquid crystal display according to Claim 1, wherein the retardation film is composed of a liquid crystal polymer.

12. A liquid crystal display according to Claim 11, wherein the liquid crystal polymer is obtained by curing an ultraviolet-curable liquid crystal monomer in a nematic phase.

13. A liquid crystal display according to Claim 1, wherein at least one of the substrates is provided with color filters and the phase difference of the retardation film is determined in accordance with the wavelength of each color filter.

14. A liquid crystal display according to Claim 13, wherein the retardation film has a phase difference of  $\lambda/4$  in accordance with the wavelength of each color filter.

15. A liquid crystal display according to Claim 1, wherein the phase difference of the retardation film in the transmissive area cancels a residual phase difference which

occurs when a sufficient voltage is applied to the liquid crystal layer.

16. A method for manufacturing a liquid crystal display which has a pair of substrates and a liquid crystal layer interposed between the substrates and which has a reflective area and a transmissive area, the method comprising the steps of:

forming a retardation film on at least one of the substrates; and

patterning the retardation film such that the retardation film remains at least in the reflective area and the phase difference of the retardation film differs between the reflective area and the transmissive area.

17. A method for manufacturing a liquid crystal display according to Claim 16, wherein the retardation film is patterned such that the retardation film remains only in the reflective area.

18. A method for manufacturing a liquid crystal display according to Claim 16, wherein an alignment film is formed on at least one of the substrates and the retardation film is formed on the alignment film.

19. A method for manufacturing a liquid crystal display according to Claim 18, wherein the retardation film is composed of a liquid crystal polymer.

20. A method for manufacturing a liquid crystal display according to Claim 19, wherein the liquid crystal polymer is obtained by curing an ultraviolet-curable liquid crystal monomer in a nematic phase.

21. A method for manufacturing a liquid crystal display according to Claim 16, wherein the step of patterning the retardation film comprises an exposure process and a development process.

22. A method for manufacturing a liquid crystal display according to Claim 16, further comprising the step of forming an alignment film by mask rubbing such that the alignment direction of the alignment film differs between the reflective area and the transmissive area on a surface of at least one of the substrates which faces the liquid crystal layer.

23. A method for manufacturing a liquid crystal display according to Claim 16, further comprising the step of forming an alignment film by photoalignment such that the

alignment direction of the alignment film differs between the reflective area and the transmissive area on a surface of at least one of the substrates which faces the liquid crystal layer.

24. A liquid crystal display comprising:  
a pair of substrates; and  
a liquid crystal layer interposed between the substrates,  
wherein the liquid crystal display has a reflective area and a transmissive area, and  
wherein at least one of the substrates is provided with a retardation film whose slow axis differs between the reflective area and the transmissive area.

25. A liquid crystal display according to Claim 24, wherein the retardation film is provided on a surface of the substrate which faces the liquid crystal layer.

26. A liquid crystal display according to Claim 24, wherein a polarizer is provided on at least one of the substrates and the slow axis of the retardation film in the transmissive area is parallel to the transmission axis or the absorption axis of the polarizer.

27. A liquid crystal display according to Claim 24, wherein a polarizer is provided on at least one of the substrates and the retardation layer polarizes light incident from the liquid crystal layer in a direction parallel to the absorption axis of the polarizer in the transmissive area when no voltage is applied or when a voltage is applied.

28. A liquid crystal display according to Claim 24, wherein the retardation film comprises a  $\lambda/4$  layer.

29. A liquid crystal display according to Claim 28, wherein the retardation film comprises a  $\lambda/4$  layer and a retardation layer which compensates for chromatic dispersion which occurs at the  $\lambda/4$  layer.

30. A liquid crystal display according to Claim 29, wherein the retardation layer comprises a  $\lambda/2$  layer.

31. A liquid crystal display according to Claim 24, wherein at least one of the substrates is provided with color filters and the phase difference of the retardation film is determined in accordance with the wavelength of each color filter.

32. A liquid crystal display according to Claim 31, wherein the retardation film has a phase difference of  $\lambda/4$  in accordance with the wavelength of each color filter.

33. A liquid crystal display according to Claim 24, wherein the liquid crystal layer has a phase difference of  $\lambda/4$ , where  $\lambda$  is the wavelength of light, in the reflective area and a phase difference of  $\lambda/2$  in the transmissive area when no voltage is applied or when a voltage is applied.

34. A liquid crystal display according to Claim 24, wherein the liquid crystal layer has a phase difference of  $\lambda/4$ , where  $\lambda$  is the wavelength of light, in the reflective area and is in a  $90^\circ$  twisted nematic state in the transmissive area when no voltage is applied or when a voltage is applied.

35. A liquid crystal display according to Claim 34, wherein the liquid crystal layer is in a twisted nematic state in the reflective area when no voltage is applied or when a voltage is applied.

36. A liquid crystal display according to Claim 34, wherein the liquid crystal layer displays an image in an electrically controlled birefringence mode in the reflective



area, and in a twisted nematic mode in the transmissive area.

37. A liquid crystal display according to Claim 24, wherein the retardation film is composed of a liquid crystal polymer.

38. A liquid crystal display according to Claim 37, wherein the liquid crystal polymer is obtained by curing an ultraviolet-curable liquid crystal monomer in a nematic phase.

39. A method for manufacturing a liquid crystal display which has a pair of substrates and a liquid crystal layer interposed between the substrates and which has a reflective area and a transmissive area, the method comprising the step of:

forming a retardation film whose slow axis is different between the reflective area and the transmissive area on at least one of the substrates.

40. A method for manufacturing a liquid crystal display according to Claim 39, wherein the retardation film is composed of a liquid crystal polymer.

41. A method for manufacturing a liquid crystal

display according to Claim 40, wherein the liquid crystal polymer is obtained by curing an ultraviolet-curable liquid crystal monomer in a nematic phase.

42. A method for manufacturing a liquid crystal display according to Claim 39, wherein the retardation film is formed by forming an alignment film by mask rubbing such that the alignment direction of the alignment film differs between the reflective area and the transmissive area, and applying a liquid crystal polymer or an ultraviolet-curable liquid crystal monomer in a nematic phase on the alignment film.

43. A method for manufacturing a liquid crystal display according to Claim 39, wherein the retardation film is formed by forming an alignment film by photoalignment such that the alignment direction of the alignment film differs between the reflective area and the transmissive area, and applying a liquid crystal polymer or an ultraviolet-curable liquid crystal monomer in a nematic phase on the alignment film.

44. A method for manufacturing a liquid crystal display according to Claim 39, further comprising the step of forming an alignment film by mask rubbing such that the

alignment direction of the alignment film differs between the reflective area and the transmissive area on a surface of at least one of the substrates which faces the liquid crystal layer.

45. A method for manufacturing a liquid crystal display according to Claim 39, further comprising the step of forming an alignment film by photoalignment such that the alignment direction of the alignment film differs between the reflective area and the transmissive area on a surface of at least one of the substrates which faces the liquid crystal layer.